

Applicant(s) Peter STAMM
Appl. No. 09/831,086

Remarks

Upon entry of the foregoing amendment, claims 2 and 3 are pending in the application, with claim 2 being the independent claim. Claim 1 has been cancelled without prejudice to or disclaimer of the subject matter therein. These amendments were made for reasons unrelated to patentability.

Examination of claims 2 and 3 is respectfully requested.

Respectfully submitted,

Date: 08/23/01



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Version with markings to show changes made

In the Specification:

Page 1, replace the paragraph beginning on line 5 with the following rewritten paragraph:

BACKGROUND OF THE INVENTION

The invention relates to a device for recording pictures of parcel surfaces [in accordance with the preamble to claim 1] containing distribution information conveyed past the device.

Page 1, replace the paragraph beginning on line 7 with the following rewritten paragraph:

Parcels are automatically sorted and distributed in respective facilities on the basis of the distribution information affixed to the surface, in most cases the receiver addresses. In the process, the parcels that are positioned on a conveying device are moved at relatively high speed, approximately 2m/second, and in part, at very small distances between the parcels past the picture-recording device, which makes the recorded pictures available to an OCR reader. Since the parcel height fluctuates considerably, the optical system of the picture-recording device must be adapted during very short intervals to the various distances between camera and parcel surfaces, so that the pictures to be evaluated do not [show fluctuations] vary in quality.

Page 1, replace the paragraph beginning on line 16 with the following rewritten paragraph:

With known solutions, the picture sharpness was therefore adapted automatically to be varied distances between parcel surface and picture recording device. For this, the distance was

measured with a height sensor that is known [per se], for example a laser sensor or a light-barrier line. Based on the measured distance, the picture sharpness was either adapted accordingly by moving the individual lenses of an objective for a picture-recording device installed vertically above the parcel (EP-A-0796 671). [Or] Alternatively, the receiver in the picture plane, for example a CCD line sensor, was displaced relative to the lens in the direction of the optical axis to create a sharper picture. In the process, the lighting that is usually integrated into the scanner is beamed at an angle onto the parcel, [that is to say at an angle] i.e., in transporting direction.

Page 2, replace the paragraph beginning on line 1 with the following rewritten paragraph:

The following disadvantages are [tied to this]:

- Depending on the parcel height, different picture scales result and thus, [also] different resolutions in the picture result. [High] Higher parcels have a [large] larger resolution and [low] lower parcels have a small resolution, consequently resulting in a smaller scanning width for high parcels and a larger scanning width for low parcels.
- If the picture recording device, which views the parcel surface at an angle, as seen in conveying direction, is fixedly connected to a lighting device, it leads to undesirable shadow formation because of the change from high to low parcels and the short distances between the parcels.

Page 2, replace the paragraph beginning on line 10 with the following rewritten paragraph:

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A device [fo] for recording pictures of parcel surfaces containing distribution information is disclosed in Japanese Patent Abstracts Vol. 014, No. 438 (P-1108) dated September 19, 1990 and JP 02 171883 A (NEC Corp.) dated July 3, 1990. The device comprises a camera directed perpendicular to the parcel surface to be recorded and provided with a CCD sensor and camera lens, as well as at least one sensor for measuring the parcel height and a control device for generating adjustment signals for the camera in dependence on the measured parcel height. The device [furthermore] is also provided with a conveying [means] mechanism for continuously conveying the parcels past the camera[, wherein the] . Preferably, the camera lens is a zoom lens with fast zoom adjustment drive and autofocus. The fast zoom adjustment drive can be actuated by the control device in such a way that the picture scale is always the same, regardless of the previously measured height of the parcel surface containing the distribution information.

Page 3, replace the paragraph beginning on line 1 with the following rewritten paragraph:

[Also disclosed is a method for beaming light] Light can be beamed onto the surface from the side by [means of] an alternately working stroboscope lamps to determine the edges of glued-on address labels or of address windows on letters. Pictures with shadows are subtracted from each other with this method. However, this conventional solution is not suitable for a shadow-free, uniform illumination of parcels of different heights (EP-A- 0 312 980).

Page 3, replace the paragraph beginning on line 6 with the following rewritten paragraph:

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SUMMARY OF THE INVENTION

Thus, it is the object of the invention [as specified in claim 1] to create a device for recording pictures of parcel surfaces for the purpose of detecting the distribution information on the parcel surfaces, such as receiver names and addresses. The device has a uniformly high resolution for parcels with different heights and illuminates the parcels in such a way that the parcel surface with distribution information, detected by the camera, is always illuminated uniformly and without shadows.

Page 3, replace the paragraph beginning on line 12 with the following rewritten paragraph:

By illuminating [Illuminating] the parcel surface from the side and the corresponding selection of light cross sections, light distribution and the beam direction [in any case ensure] results in a shadow-free illumination of the parcel surface in any situation.

Page 3, replace the paragraph beginning on line 15 with the following rewritten paragraph:

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is explained with further detail in the following, with the aid of an exemplary embodiment and the drawings [drawing].

[Shown are in:]

Figure 1 shows a [A] schematic view from the side of the device for recording pictures, perpendicular to the conveying direction of the parcels.

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Figure 2 shows a [A] schematic view from the side of the device for recording pictures, as seen in parcel-conveying direction.

Page 3a, replace the paragraph beginning on line 1 with the following rewritten paragraph:

DETAILED DESCRIPTION OF THE INVENTION

The parcels are conveyed on tilting trays 2, wherein conveyor belts can be used as well, in the direction indicated by arrow and at a speed in excess of [>] 1.7 m/s. The distances between the parcels 1 can be 150 mm or less.

Page 4, replace the paragraph beginning on line 1 with the following rewritten paragraph:

Initially, [they] parcels pass by two overhead installed sensors 3, for example, ultrasound sensors, which measure the parcel height. A curtain of light on the side can be used as well. Following this, the parcels 1 reach the recording area of a camera 4 that is installed centrally above the parcels and comprises a zoom lens 5 with autofocus. The camera 4 is equipped with a CCD diode row that scans the parcel surface during the transport. The zoom lens 5 is driven by a fast linear motor 6, which is actuated by a control device 7 to which the sensors 3 for measuring the parcel height are connected as well. In dependence on the previously measured parcel heights, the linear motor 6 is actuated by the control device 7 in such a way that the picture scale is always the same [with] and has uniform resolution, regardless of the parcel height.

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Page 4, replace the paragraph beginning on line 1 with the following rewritten paragraph:

A light barrier that is also connected to the control device 7 is connected upstream to activate the picture recording device and to report whether tilting trays 2 are occupied by parcels

1. Crosswise to the direction for conveying parcels 1 on the tilting trays 2 and at the level of camera 4, as seen in transporting direction, two lighting devices 8 are installed above and to the side of parcels 1[, which]. The lighting devices 8 beam light at an angle onto the parcels 1. The light direction, the illuminated surface, and the distribution of the light from the lighting devices 8 are selected such that the parcel surface detected by the camera 4, which contains the distribution information, is always illuminated uniformly and without shadows for any of the different parcel heights.